

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

|                        |               |
|------------------------|---------------|
| Application Number     |               |
| Filing Date            | 9/5/03        |
| First Named Inventor   | Yukiko Kubota |
| Art Unit               |               |
| Examiner Name          |               |
| Attorney Docket Number | SEAG 61977    |

Sheet 1

of 25

**U. S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No. <sup>1</sup> | Document Number                          | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines, Where<br>Relevant Passages or Relevant<br>Figures Appear |
|--------------------|-----------------------|--|--------------------------------|--|---|
|                    |                       | Number-Kind Code <sup>2</sup> (if known) |                                |  |   |
| YK                 |                       | US- 5,082,749                            | 01-21-1992                     | Carcia   | /   |
| "                  |                       | US- 5,407,755                            | 04-18-1995                     | Brucker et al.                                     |   |
| "                  |                       | US- 5,436,072                            | 07-25-1995                     | Hatwar et al.                                      |   |
| "                  |                       | US- 5,563,000                            | 10-08-1996                     | Hatwar et al.                                      |   |
| "                  |                       | US- 5,565,266                            | 10-15-1996                     | Hatwar et al.                                      |   |
| "                  |                       | US- 5,660,930                            | 08-26-1997                     | Bertero et al.                                     |   |
| "                  |                       | US- 5,693,200                            | 12-02-1997                     | Tyan et al.  |   |
| "                  |                       | US- 5,750,274                            | 05-12-1998                     | Hatwar et al.                                      |   |
| "                  |                       | US- 6,444,296 B1                         | 09-03-2002                     | Sasaki et al.                                      |   |
|                    |                       | US-                                      |                                |  |   |
|                    |                       | US-                                      |                                |  |   |
|                    |                       | US-                                      |                                |  |   |
|                    |                       | US-                                      |                                |  |   |
|                    |                       | US-                                      |                                |  |   |
|                    |                       | US-                                      |                                |  |   |
|                    |                       | US-                                      |                                |  |   |
|                    |                       | US-                                      |                                |  |   |
|                    |                       | US-                                      |                                |  |   |

**FOREIGN PATENT DOCUMENTS**

| Examiner Initials* | Cite No. <sup>1</sup> | Foreign Patent Document   | Publication Date<br>MM-DD-YYYY | Name of Patentee or<br>Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages<br>Or Relevant Figures Appear | T <sup>6</sup> |
|--------------------|-----------------------|---|--------------------------------|--|--|----------------|
|                    |                       | Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known) |                                |  |  |                |
|                    |                       |   |                                |  |  |                |
|                    |                       |   |                                |  |  |                |
|                    |                       |   |                                |  |  |                |
|                    |                       |   |                                |  |  |                |
|                    |                       |   |                                |  |  |                |
|                    |                       |   |                                |  |  |                |
|                    |                       |   |                                |  |  |                |
|                    |                       |   |                                |  |  |                |
|                    |                       |   |                                |  |  |                |

Examiner  
Signature

Yukiko M. Kubota

Date  
Considered

7/1/05

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|  |   |    |                          |                        |            |
|--|---|----|--------------------------|------------------------|------------|
| Substitute for form 1449B/PTO<br><br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><br>(use as many sheets as necessary) |   |    | <b>Complete if Known</b> |                        |            |
|  |   |    | Application Number       |                        |            |
|  |   |    | Filing Date              | 9/5/03                 |            |
|  |   |    | First Named Inventor     | Yukiko Kubota          |            |
|  |   |    | Group Art Unit           |                        |            |
|  |   |    | Examiner Name            |                        |            |
| Sheet  | 2 | of | 2                        | Attorney Docket Number | SEAG 61977 |

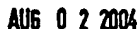
| Examiner Initials | Cite No. <sup>1</sup> | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>2</sup> |
|-------------------|-----------------------|---|----------------|
| KPB               |                       | W. PENG ET AL., "Perpendicular Magnetic Recording Thin Film Media Using Co/Pd Superlattice On Ultrathin Indium-Tin-Oxide Seed Layers", <i>Journal of Applied Physics, American Institute of Physics</i> , Vol. 87, No. 9, pp. 6358-6360 (May 2000)              |                |
| vi                |                       | W. PENG ET AL., "Co/Pt Superlattices With Ultra-Thin Ta Seed Layer On NiFe Underlayer For Double-Layer Perpendicular Magnetic Recording Media", <i>IEEE Trans. On Magn.</i> , Vol. 36, No. 5, pp. 2390-2392 (September, 2000)                                   |                |
| vi                |                       | R. H. VICTORA ET AL., "Superlattice Magnetic Recording Media: Experiment And Simulation", <i>Journal of Magnetism and Magnetic Materials</i> ", pp. 305-311 (2001)  |                |
| vi                |                       | W. PENG ET AL., "Co/Pd And Co/Pt Multilayers With Indium Tin Oxide Seed Layers And NiFe Soft Underlayers For Perpendicular Magnetic Recording Media", <i>IEEE Trans. On Magn.</i> , Vol. 37, No. 4, pp. 1577-1579 (July, 2001)                                  |                |
| vi                |                       | Y. KUBOTA ET AL., "Development Of CoX/Pd Multilayer Perpendicular Magnetic Recording Media With Granular Seed Layers", <i>Journal of Magnetism and Magnetic Materials</i> ", pp. 297-303 (2002)   |                |
| vi                |                       | W. PENG ET AL., "CoB/Pd Multilayers With Indium Tin Oxide Seedlayer On NiFe Underlayer For Perpendicular Magnetic Recording", <i>Journal of Applied Physics, American Institute of Physics</i> , Vol. 91, No. 10, pp. 8070-8072 (May 2002)                      |                |
| vi                |                       | R. W. WOOD ET AL., "Recording Technologies For Terabit Per Square Inch Systems", <i>IEEE Trans. On Magn.</i> , Vol. 38, No. 4, pp. 1711-1718 (July, 2002)   |                |
|                   |                       |   |                |
|                   |                       |   |                |

|                    |                    |                 |        |
|--------------------|--------------------|-----------------|--------|
| Examiner Signature | <i>Kin M. Rute</i> | Date Considered | 7/1/05 |
|--------------------|--------------------|-----------------|--------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

+ Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231



Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

*(Use as many sheets as necessary)*

Sheet 1 of 4

**Complete if Known**

|                        |               |
|------------------------|---------------|
| Application Number     | 10/656,348    |
| Filing Date            | 09/05/2003    |
| First Named Inventor   | Yukiko Kubota |
| Art Unit               | 1775          |
| Examiner Name          | N/A           |
| Attorney Docket Number | SEAG 61977    |

## U. S. PATENT DOCUMENTS

[illegible]

## FOREIGN PATENT DOCUMENTS

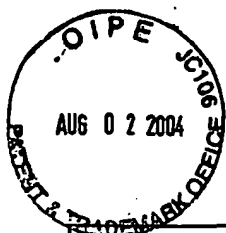
[illegible]

|                       |                           |                    |         |
|-----------------------|---------------------------|--------------------|---------|
| Examiner<br>Signature | <i>Kim M. [Signature]</i> | Date<br>Considered | 7/11/05 |
|-----------------------|---------------------------|--------------------|---------|

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of Information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

**If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.**



PTO/SB/08B (10-96) Please type a plus sign (+) inside this box ☒ Approved for use through 10/31/99. OMB 0651-0031

Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

|   |   |                          |               |                        |            |
|---|---|--------------------------|---------------|------------------------|------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><br>(use as many sheets as necessary) |   | <b>Complete if Known</b> |               |                        |            |
|   |   | Application Number       | 10/656,348    |                        |            |
|   |   | Filing Date              | 09/05/2003    |                        |            |
|   |   | First Named Inventor     | Yukiko Kubota |                        |            |
|   |   | Group Art Unit           | 1775          |                        |            |
|   |   | Examiner Name            | N/A           |                        |            |
| Sheet   | 2 | of                       | 2             | Attorney Docket Number | SEAG 61977 |

| Examiner Initials  | Cite No.          | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T <sup>1</sup>         |
|--------------------|-------------------|---|------------------------|
| 9/6/03             |                   | T. K. HATWAR ET AL., "High-Performance Co/Pt Multilayer Magneto-Optical Disk Using Ultrathin Seed Layers", <i>Journal Of Applied Physics, American Institute of Physics</i> , Vol. 81, No. 8, pp. 3839-3841, April 15, 1997                                     |                        |
| u                  |                   | P. JANG ET AL., "Role Of Ag Seed Layer For CoCrPt/Ti Perpendicular Recording Media", <i>Journal Of Applied Physics, American Institute of Physics</i> , Vol. 93, No. 10, pp. 7741-7743, May 15, 2003  |                        |
| a                  |                   | X. QI ET AL., "Effects And Microstructures Of Indium Tin Oxide Seed Layers For Perpendicular Magnetic Recording Media", <i>Journal Of Applied Physics, American Institute of Physics</i> , Vol. 93, No. 10, pp. 7849-7851, May 15, 2003                         |                        |
|                    |                   |   |                        |
|                    |                   |   |                        |
|                    |                   |   |                        |
|                    |                   |   |                        |
|                    |                   |   |                        |
| Examiner Signature | K. M. [Signature] |   | Date Considered 7/1/05 |

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Unique citation designation number. <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

+ Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.